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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,478	08/31/2001	Tyler A. Lowrey	INTO-0006-US (P12499)	1547

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EXAMINER

QUACH, TUAN N

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,478

Applicant(s)

LOWREY, TYLER A.

Examiner

Tuan Quach

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,9,10,37,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9,10,37,39 and 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1103.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims 1-6, 9, 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for the "cup-shaped heater" now claimed in claim 1 line 6 and last line.

Claims 1-6, 9, 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The step of "forming a cup-shaped heater" fails to distinctly point out the subject matter as delineated in the instant application, page 6, second paragraph.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9, 10, 37, 39, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry et al. taken with Harshfield '720.

Lowry et al. (WO 00/57498) teach forming base contact 112, covering with layers including insulating layer 124 and forming electrical connection 130a/130b

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therethrough to the base contact, depositing insulator 140 in the connection, forming phase change material 250 thereon connecting to contact 112 through contact 130a/130b. See Figs. 5A-5J and the corresponding description, page 12 line 15 to page 16 line 20. Regarding the contact being cup-shaped or tubular, such would correspond to the alternative embodiments show in Lowry et al., page 25 line 16 to page 26 line 5, Figs. 9 and 10b, wherein the cup-like shell 450 is shown.

Harshfield '287 teaches cup-shaped or annular connection 124 through insulator 110, the connection contacting conductor 106 and phase change 130. The filling of connection 124 with insulator, e.g., layer 122 is also shown. See Figs. 3-8, column 3 line 30 to column 5 line 21.

The references applied above do not recite the additional electrode under the phase change material (e.g., the so-called cup-shaped heater in claim 1 line 6-7 and the second cup-shaped connection layer in claim 37) and the sidewall spacer (e.g., in claims 9, 10, 39, 40).

Harshfield '720 shows the provision of conductor 42 connecting to semiconductor 60, forming phase change element 20 including the intervening electrical connection 46 on the conductor 42 including the insulator spacer 44 to permit minimizing active area of contacting between the electrode and the phase change material. See column 2 lines 11-25, Fig. 3, column 3 line 40 to column 5 line 13.

Accordingly, it would have been obvious to one skilled in the art in practicing the above processes to have employed a two-portion electrode

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wherein the area of contacting with the phase change material in the upper electrode can be reduced using sidewall spacer as taught by Harshfield '720.

Applicant's arguments filed November 20, 2003 have been fully considered but they are not persuasive.

Initially, see the new grounds of rejections delineated above.

Applicant argues that in the claimed invention a tubular conductor contact a cup-shaped conductor that receives the phase change material and the tubular or radially spaced contact can be brought back centrally to heat the phase change material from the center and that the conversion of tubular to tubular cup is nowhere suggested in the references and has a chunk in the middle.

Nonetheless, the tubular conductor contact is shown in Lowry, see, e.g., Fig. 5L, and the alternative embodiments in Lowry, page 25 line 16 to page 26 line 5 and Figs. 9 and 10B evidencing the conventionality of such shape and further is encompassed by the cup-shaped connection as delineated, for instance, in instant claim 5. See also Harshfield '287 wherein the cup-shaped is shown, e.g., Figs. 22 and 23. The alleged advantages regarding the heating resulting from such shape would have been obtained by Lowry. It remains that provision of two-portion electrode is advantageous as delineated in Harshfield '720 which permits the reduction of contact area and the inclusion of the sidewall spacer as delineated therein.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

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See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number (571)272-1717. The examiner can normally be reached on M - F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Wael Fahmy can be reached on (571)272-1705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1562.



Tuan Quach
Primary Examiner